

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

Claims 1 and 2, the Abstract and the title have been amended. No new matter has been added.

The amendments to claim 1 are supported by Fig. 4 and the descriptions at paragraphs [0025] and [0026] of the specification. The amendments to claim 2 are supported by Fig. 4 and the descriptions at paragraph [0025] of the specification. (It should be noted that references herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

The abstract and title of the invention have been amended to overcome the objections in the Office Action.

Claims 1, 2, 4, 8 and 9 stand rejected under 35 USC 103(a) as unpatentable over Saji (US Pub. No. 20020159373) in view of Watanabe (US Pat. No. 6,529,461). Claim 3 stands rejected under 35 USC 103(a) as unpatentable over Saji in view of Watanabe, further in view of Cho (US Pub. No. 20030128645). Claims 5-7 and 10-11 stand rejected under 35 USC 103(a) as unpatentable over Saji in view of Watanabe, further in view of Aoyama (US Pub. No. 20050060734). To the extent that these rejections may be deemed applicable to the amended claims presented herein, the Applicants respectfully traverse.

The instant invention relates to a disk apparatus which inserts and ejects a disk automatically, as depicted for example in Fig. 1. Traditional disk apparatuses have a tray or turntable on which the disk is loaded into the apparatus body. In part in an effort to reduce the

size of the disk apparatus, slot-in type disk apparatuses have been created. However, these types of disk apparatuses can still suffer from too large thickness and size. One solution to reduce the thickness and size is to use a chassis outer sheath made from aluminum alloy or magnesium alloy. Use of this material, however, requires an increase in the rigidity of the chassis' outer sheath. Additionally, it is necessary to make the disk apparatus thin and small, and to achieve smooth motion without damaging the recording surface of the disk when the disk is inserted or ejected.

The present invention uses first and second narrow grooves to accomplish this task. Specifically, claim 1 is directed to a disk apparatus comprising a chassis outer sheath having a base body and a lid. A front surface of the chassis outer sheath is formed with a disk inserting opening into which a disk is directly inserted. The base body is formed with a deep bottom and a shallow bottom, with the shallow bottom being disposed on a side of the deep bottom, and the lid covering the deep bottom and the shallow bottom. The first and second narrow grooves are adjacently formed on an end of the lid on the side of the front surface. The first narrow groove projects toward the base body and the second narrow groove projects in a direction opposite from the first narrow groove. The second narrow groove is provided on the outermost periphery of the end of the lid on the side of the front surface. A wall is formed on another end of the lid except the side of the front surface, and the first narrow groove is gradually increased in height from its center toward its end. (See, for example, paragraphs [0025] – [00226]).

Saji is cited in the Office Action as disclosing the features of previous claim 1 except for “a first and second narrow groove.”

However, the Office Action at paragraph 8 cites Watanabe for disclosing:

“a disk apparatus in which the lid has a first narrow groove (Fig. 16, 75) having a pre-determined length projecting toward the base body and a second narrow groove (Fig. 16, 76 or Fig. 17A, 77) having a predetermined length projecting opposite from the first narrow groove. Both grooves are formed on a front end (Fig. 16, and Column 11, lines 60-67 thru Column 12, line 1) of the cover and strengthen it (Column 11, lines 64-66).”

The Office Action also states that it would have been obvious to use the grooves of Watanabe with the disk apparatus of Saji.

The Applicants respectfully disagree for reasons set forth below.

The disk apparatus in Watanabe has a tray which allows a user to insert and eject a disk by hand (represented, for example, in Fig. 2 as A and B). This type of conventional disk apparatus suffers from the problems associated with the prior art. Unlike the instant claimed invention, the tray in Watanabe prevents deformation of the chassis outer sheath during a disk conveyance motion. Elongated protrusions 75, 76 and 77 function as beads and are formed to provide a predetermined strength to cover 9.

However, Watanabe fails to disclose a second narrow groove provided on the outermost periphery of an end of the lid on the side of the front surface, a wall formed on another end of the lid except the side of the front surface, and the first narrow groove gradually increased in height from its center toward its end, as required by the instant claimed invention. Rather, as indicated above, Watanabe simply discloses elongated protrusions 75, 76 and 77. It is clear from Fig. 6 and the corresponding description in Watanabe that there is no disclosure of the instant claimed features (as amended).

Significantly, by forming the first narrow groove and the second narrow groove adjacently, the first narrow groove and the second narrow groove are used to enhance the rigidity of the chassis outer sheath. At the same time, maximum clearance between a loaded disk and the

first narrow groove and the second narrow groove can be secured in a limited space. By providing the second narrow groove on the outermost periphery of the end of the lid on the side of the front surface, an opening at the front surface formed by the end of the lid on the side of the front surface and the end of the base body on the side of the front surface becomes wider, so that the width of an inserting opening of a bezel can be wider to improve a disk inserting function. As a result, the disk apparatus can be made thin and small, the rigidity of the chassis outer sheath is enhanced and disk inserting function is improved.

Additionally, the wall is formed on another end of the lid except the side of the front surface. Unless the rigidity of the front surface is particularly enhanced, bending and harmful motion would be exerted on the chucking motion of the disk. By gradually increasing the first narrow groove in height from its center toward its end, it is possible to increase the rigidity against the bending compared to forming a groove having the same height. Also, it is possible to guide the disk through opposite ends of the first narrow groove when the disk is inserted or ejected. As a result, smooth motion can be carried out without damaging the recording surface of the disk.

Accordingly, the Applicants submit that even if the teachings of Saji and Watanabe were combined as proposed in the Office Action, the result would lack the above-noted features of claim 1. Thus, claim 1 is allowable over the individual or combined teachings of the applied references. Claims 2-11 are considered to be allowable due to their dependence from allowable independent claim 1 and also due to their recitation of subject matter that provides an independent basis for their individual allowability.

In view of the above, the Applicants submit that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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